

PARASITES OF WESTERN AUSTRALIA

XIV

TWO NEW SPECIES OF *OPHTHALMODEX* LUKOSCHUS AND NUTTING (ACARINA: PROSTIGMATA: DEMODICIDAE) FROM THE EYES OF BATS

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ABSTRACT

Two new species of *Ophthalmodex* Lukoschus and Nutting from bats are described from the Kimberley Division of Western Australia: *O. australiensis* from *Rhinonictoris aurantius* (Gray) (Hipposideridae) and *O. wilsoni* from *Eptesicus pumilus* (Gray) (Vespertilionidae).

INTRODUCTION

Species of *Ophthalmodex* Lukoschus and Nutting, 1979, tiny turtle-shaped mites of the family Demodicidae live on the corneal surface in the eyelid fornices and in the ducts of the lacrimary glands of mammals. They are morphologically adapted to these niches, where they consume epithelial cells. Only lightly infected hosts and low-grade pathology have been observed (Lukoschus and Nutting 1979, Lukoschus *et al.* 1980).

SYSTEMATICS

Key to Species of *Ophthalmodex*

Males

- 1 Opisthosoma strongly reduced, not prominent between legs IV, prodorsal shield with U or V-shaped elevation behind aedeagus 2
Opisthosoma in form of U or V-shaped prominence behind legs IV, prodorsal shield with or without inverted V-shaped elevation, covering aedeagus 3
- 2 Aedeagus slender, shield elevation in V-shape, inverted U-shaped striations on posterior part of dorsum, *ex Artibeus literatus* ... *O. artibeus* Lukoschus and Nutting, 1979
Aedeagus stout, shield elevation in U-shape, only few longitudinal striations on terminal region of dorsum, *ex Carollia perspicillata* *O. carolliae* Lukoschus *et al.*, 1980

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- 3 Claws with 6 points, *ex Molossus molossus* *O. molossi* Lukoschus
et al., 1980
Claws with 5 points 4
- 4 Coxal fields II and III largely separated in midline,
opisthosoma almost triangular, tapering to end, *ex*
Rhinonictus aurantius *O. australiensis* sp. nov.
Coxal fields II and III almost together in midline,
opisthosoma with broad end, *ex Eptesicus pumilus* . . . *O. wilsoni* sp. nov.

Females

- 1 Genital opening between coxal fields IV 2
Genital opening behind coxal fields IV 3
- 2 Opisthosoma a single U-shaped prominence. Dorsal
shield covering anterior podosoma, *ex Artibeus literatus* *O. artibeus*
Lukoschus et al., 1980
Opisthosomal contours laterally bisinous. Dorsal
shield demarked anteriorly from anterior podosoma
by single striation, *ex Carollia perspicillata* *O. carolliae*
Lukoschus, et al., 1980
- 3 Claws with 6 points, *ex Molossus molossus* *O. molossi* Lukoschus
et al., 1980
Claws with 5 points 4
- 4 Coxal fields II and III small, widely separated in mid-
line, *ex Rhinonictus aurantius* *O. australiensis* sp. nov.
Coxal fields large trapezoid, close together in midline,
ex Eptesicus pumilus *O. wilsoni* sp. nov.

Ophthalmomox australiensis sp. nov.

Figs 1-5

Holotype

WAM 80-320; male; total length 125 μ m, width 79 μ m; host: *Rhinonictus aurantius* (Gray): Hipposideridae (deposited in the Field Museum of Natural History, Chicago [FMNH]); locality: Geikie Gorge, 18°05'S, 125°43'E; 9 October 1976; coll. F.S. Lukoschus.

Allotype

WAM 80-319; female; total length 140 μ m, width 85 μ m. Other data as for the holotype.

Paratypes

WAM 80-321 (1 slide). Other paratypes are in FMNH (3 slides) and the Catholic University of Nijmegen (CU) (3 slides). Other data as for the holotype.

Diagnosis

Elongate-oval species with the characteristics of the genus. Axes in both sexes 1.6: 1, opisthosoma a quarter of total length. Largest adult, a female, 148 x 73 μm .

Description

Male (Figs 1, 2): Venter (Fig. 1) elongate, with pronounced opisthosoma. Gnathosoma and legs partly covered by overhanging carapace-like dorsum. Legs short and broad with large coxal plates touching one on the next in file, but widely separated in midline (except legs I). Length of coxal fields about subequal to their width. Femora with prominent ventroposterior spurs not remarkably sclerotised. Genua-tarsi fused into apical segment with two large five-tined claws, two point-like internal sclerotisations, and on legs I-II one free solenidion (so). Shaft of claws moderately recurved, apical tines smaller than lateral ones. Gnathosoma with two-segmented palps and styliform chelicerae. Small palptarsus attached ventrally to broad palptibia with lateral and dorsoanterior conical expansions. Palptarsus with two two-pointed claw-like spines and one small solenidion. Pharyngeal bulb present, subgnathosomal setae absent. Supracoxal setae (scx) short in broad, relatively strongly sclerotised rings on dorsolateral side of gnathosomal base. Dorsum (Fig. 2): Prodorsal shield with triangular elevation, without sclerotised pattern or podosoma tubercles, 67 x 57 μm (holotype), covering most of width of podosoma. Large genital opening near anterior border of prodorsal shield. Aedeagus strong, 29 μm long (holotype), in penis sheath. Soft parts of metapodosoma transversely striated.

Female (Figs 3, 4): Total length in 10 paratypes measured 140.7 ± 4.8 , width 85.1 ± 5.8 . General shape of venter, legs and gnathosoma as in male, but palptibia with stronger dorsoanterior cone, and broader opisthosoma with tapering rounded end (33 μm long [allotype], in paratypes 34.3 ± 2.0). Total length/length opisthosoma 4.11 ± 0.12 . Genital opening behind coxal plates IV. Dorsum with large prodorsal shield 67 μm long (allotype), paratypes 70.1 ± 7.3 , almost wholly covering region of legs I-III. Soft parts to sides of shield with few longitudinal striae, behind shield with largely transverse striae.

Nymph (Fig. 5): Oval, with soft, smooth cuticle. Gnathosoma head-like as large as in adults, with palps, carrying two spines. Legs stubby, unsegmented, with two lobes, but without ventral segmentation line as in *Demodex*. Leg lobes each with one two-pointed claw with slender tines. Solenidia not observed. Ventral scutes and other anchoring organs absent.

Egg: With thin unsculptured shell, large in relation to female and genital opening: $61.1 \pm 2.4 \mu\text{m}$. As in all other demodicid and psorergatid genera egg-shell not observable within females mounted in Hoyer's medium.



Figs 1-5: *Opthalmodex australiensis* sp. nov. (1) male holotype, venter; (2) male holotype, dorsum; (3) female allotype, venter; (4) female allotype dorsum; (5) nymph, venter.

Ophthalmodex wilsoni sp. nov.

Figs 6-9

Holotype

WAM 80-316; female; total length 148 mm, width 93 μ m; host: *Eptesicus pumulis* (Gray): Vespertilionidae (deposited in FMNH); locality Geikie Gorge, 18°05'S, 125°43'E; 9 October 1976; coll. F.S. Lukoschus.

Allotype

WAM 80-317; male, total length 128 μ m, width 93 μ m. Other data as for the holotype.

Paratypes

WAM 80-318 (1 slide). Other paratypes are in FMNH (4 slides) and CU (3 slides). Other data as for holotype.

Diagnosis

With characteristics of the genus and closely related to *O. australiensis*. Largest adult, a female 157 x 102 μ m. Opisthosoma less than a quarter of total length.

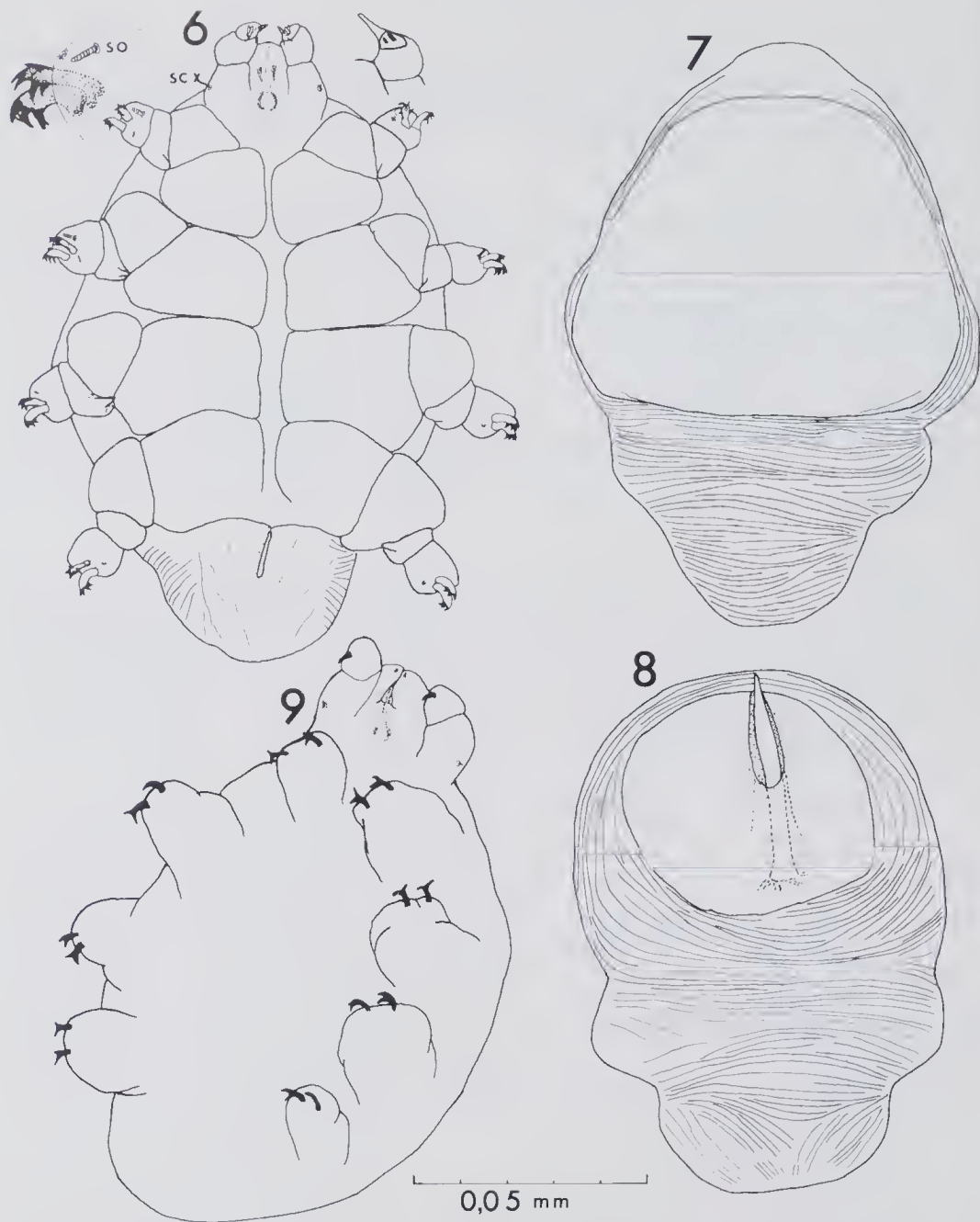
Description

Male (Fig. 8): Total length 125 μ m, width 90 μ m in single paratype. General shape of venter as in female. Dorsum with small prodorsal shield, lacking elevation covering aedeagus (49 x 49 μ m) in allotype, falling well short of sides of propodosoma. Genital opening long, oval, near anterior border of shield. Aedeagus 24 μ m long (allotype), relatively stout, within distinct penis sheath. Striations of soft parts as figured.

Female (Figs 5, 7): Total length in 13 paratypes measured 144.5 ± 8.6 , width 92.7 ± 7.1 . Opisthosoma of holotype 31 μ m (29.7 ± 4.7) long, with broad rounded end, without distinct transverse striation. Total length/length opisthosoma 4.86 ± 0.76 . Venter (Fig. 6) as in *O. australiensis*, but legs set more ventrally, and coxal plates I touching in midline, II-IV separated by small sternal region. Coxal plates distinctly larger in transverse than in longitudinal direction (contrary to *O. australiensis*). Claws with five subequal tines. Palptibia with long dorsodistal protrusion and rather strong sclerotisation (palptibial claw). Dorsum (Fig. 7) with broad prodorsal shield, covering propodosoma except for narrow strip at sides, 84 μ m long in holotype (74.5 ± 5.0). Soft parts beside shield with longitudinal, behind shield with transverse striations.

Nymph (Fig. 9): General shape as in *O. australiensis* with gnathosoma prominent, as large as in adults. Palptarsus with only one spine. Legs stumpy, without distinct lobes; claws with stronger points.

Egg: Subspherical, 63.8 ± 3.2 μ m, large in relation to female and genital opening.



Figs 6-9: *Ophthalmodex wilsoni* sp. nov. (6) female holotype, venter; (7) female holotype, dorsum; (8) male allotype, dorsum; (9) nymph, venter.

Etymology

The new species is dedicated to Dr Barry Wilson, Director, National Museum of Victoria, Melbourne, formerly Head of the Division of Natural Science, Western Australian Museum, Perth.

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